

## **THYRISTOR SEMICONDUCTOR MEMORY DEVICE AND METHOD OF MANUFACTURE**

### **Abstract:**

A thyristor memory device may comprise a capacitor electrode formed over a base region of the thyristor using a replacement gate process. During formation of the thyristor, a base-emitter boundary may be aligned relative to a shoulder of the capacitor electrode. In a particular embodiment, the replacement gate process may comprise defining a trench in a layer of dielectric over semiconductor material. Conductive material for the electrode may be formed over the dielectric and in the trench. It may further be patterned to form a shoulder for the electrode that extends over regions of the dielectric over a base region for the thyristor. The extent of the shoulder may be used to pattern the dielectric and/or to assist alignment of implants for the base and emitter regions of the thyristor.